

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.





Snow Surveyors Climbing to a Snow Course

FEDERAL-STATE COOPERATIVE
SNOW SURVEYS AND IRRIGATION WATER FORECASTS

for

MISSOURI and ARKANSAS DRAINAGE BASINS

MAY 1, 1946

By

Division of Irrigation, Soil Conservation Service
United States Department of Agriculture
and
Colorado Agricultural Experiment Station

Data included in this report were obtained by the agencies named above in cooperation with the U. S. Forest Service, National Park Service, State Engineers of Colorado, Wyoming and New Mexico and other Federal, State and local organizations.

May 1, 1946

WATER SUPPLY OUTLOOK

MISSOURI-ARKANSAS DRAINAGE BASINS

For the Missouri and tributaries the runoff this season will be generally normal. The Yellowstone is now flowing much above normal stage. Montana reservoir storage is satisfactory. Runoff in the North Platte and Laramie in Wyoming will not exceed normal flow. Reservoir storage in these drainages is much in excess of last year and irrigation water supply is assured. The deficiency of precipitation during April throughout the South Platte drainage results in downward revision of the expected runoff. May first snow surveys indicate less than normal water supply from snow throughout the entire basin. The outlook for the Arkansas is now less promising than a month ago. Storage in the mountains and plains reservoirs exceeds 300,000 acre-feet. No material water shortage is expected.

MISSOURI RIVER AND TRIBUTARIES IN MONTANA

Generally, over the watersheds of the Missouri and its several tributaries in southern Montana, snow conditions still indicate that the runoff this season will be somewhat below normal. The reservoir storage is generally satisfactory. Soil moisture conditions are below normal and irrigation has started earlier this year because of the advanced season. The present stream flow throughout the Missouri Drainage appears to be somewhat above normal, resulting from favorable melting temperatures and accumulations from the melt of the snow at lower altitudes.

JEFFERSON: The average water content of the snow on the watershed of the Jefferson is three-fourths of that a year ago and about 10 percent less than the past 11-year average. Since the first of April the outlook for the coming season's runoff in this stream has become less promising. It now appears that the runoff will be about three-fourths of normal.

MADISON: The present outlook for the coming season's runoff in the Madison still continues good. On the watershed of this stream the average water content is 30 percent more than it was a year ago and 10 percent above the past 11-year average.

GALLATIN: For the Gallatin the irrigation water supply outlook this season remains fairly good and it is expected that the runoff will be approximately normal. Water content of the snow is now practically equal to that of

a year ago at this time and likewise equal to the past 11-year average.

MUSSELSHELL: Because of the continue deficiency of precipitation during April, generally over the central area of Montana snow conditions on the watershed of this stream did not improve. It is estimated that the runoff in the Musselshell will not exceed 75 percent of normal.

MARIAS: Recent snow surveys on the watershed of this stream indicate that the average water content is but 30 percent of that last year and is 30 percent less than the past 11-year average. The subnormal April precipitation and favorable melting temperatures have greatly reduced the snow pack and the expected runoff this season will be somewhat less than normal.

MISSOURI: (Helena-Great Falls): Snow conditions on the Missouri River appear to indicate a much less favorable outlook now than on April 1st. The average water content is but 20 percent of that of last year and about 40 percent of the past 11-year average. The marked dissipation of the water content of the snow cover during April has resulted in a much less favorable outlook for the season's flow of this stream. It is now estimated that the runoff will be 85 percent of normal.

YELLOWSTONE: Snow conditions on the headwaters of the Yellowstone still continue to be favorable for adequate runoff this season. At this time the average water content of the snow on the watershed is only 10 percent less than that a year ago and is 10 percent more than the 11-year average. The runoff in the Yellowstone this season is expected to be slightly more than normal.

MILK RIVER: It is not expected that the runoff in this stream this season will exceed about three-fourths normal.

SHOSHONE RIVER: During the past month the snow cover on the headwaters of the Shoshone was lessened to the point where there is now about 60 percent of that last year and likewise 60 percent of the 11-year average. It is expected that the runoff will be sufficient to fill the Shoshone Reservoir to capacity and because of this there will be no water shortage this season throughout the area irrigated from this stream. There is now in storage 388,000 acre-feet as compared with 258,000 a year ago. The capacity is 457,000 acre-feet. Agricultural conditions over the Shoshone Project area appear to be fairly satisfactory and are some three or four weeks earlier than last year at this time.

BIGHORN RIVER: The present outlook for the coming season's runoff in the Bighorn is much less promising now than it was a month ago. During April a loss was suffered in water content of the snow cover on this drainage and is now only one-fourth of that of a year ago and only one-third of the 11-year average. It therefore appears that the runoff may not exceed three-fourths of the normal flow. In the Riverton area soil moisture conditions are poor to fair. Grass on the range is slow in starting because of lack of moisture. Favorable weather has increased the stream flow to above normal stage. The combined storage in Bull Lake and Pilot Butte reservoirs is about 75,000 acre-feet as compared with 71,000 a year ago at this time. At Brooks' Lake, headwaters of this stream, the water content is 13.4 inches

where last May 1st it was 17.9 inches. Above normal temperatures have melted the snow, especially at elevations below 8,000 feet, and have resulted in peak flows which may be the maximum for the year. Farming operations on the upper Bighorn are well advanced at this time.

TONGUE RIVER: Much of the snow cover on the Tongue has been dissipated during the month of April due to above normal temperatures. Stream flow is normal and soil moisture generally fair. At this time there is no snow below 8,000 feet elevation. However, after May 1st there was a general storm over the watershed of this stream which no doubt has improved the general outlook. The prospect for favorable runoff this season is fairly good at this time and it is not expected that there will be a water shortage this season.

POWDER RIVER: Outlook for runoff in this stream this season is rather discouraging. Much of the snow cover on the watershed has melted during the past month and it is probable that the peak flow has occurred. The runoff will be much below normal and unless there are favorable rains a water shortage can be expected after mid-summer.

CHEYENNE RIVER: The general outlook for the coming season's irrigation water supply for the Cheyenne River area is fairly promising. On the Belle Fourche Project, soil moisture conditions are excellent. There has been above normal precipitation during April and range conditions are exceptionally good. The season is well advanced in this area and agricultural operations are well under way. There is now in storage in the Belle Fourche Reservoir 152,000 acre-feet of water as compared with 146,000 last year at this time. It is not expected that there will be a water shortage this season for the areas irrigated from this stream.

NORTH PLATTE RIVER: For the North Platte drainage the prospects are that this season's runoff will be below normal, but because of the storage in reservoirs all irrigated lands in eastern Wyoming and along the valley in Nebraska will have an ample water supply. For the principal reservoirs on the North Platte in Wyoming the total storage is 1,163,000 acre feet, as compared with 594,000 a year ago. Combined storage of the Kingsley and Sutherland reservoirs in Nebraska is 1,280,000 acre-feet as compared with 982,000 last year. On the Pathfinder Irrigation District reservoir storage is now 57,000 acre-feet as compared with 49,000 a year ago. The soil moisture conditions throughout the valley are only fair. However, recent storms have improved this condition. Stream flow is generally normal. Subsequent to the snow surveys on the headwaters of this stream in North Park there was a snowfall of 20 to 30 inches in the mountain area of the Park. This storm resulted in .35 inch of precipitation at Walden.

SWEETWATER RIVER: The water content of the snow on the watershed of this stream is much below normal and runoff this season probably will not exceed three-fourths of the normal flow.

LARAMIE RIVER: Storms over the headwaters of the Laramie River drainage have somewhat improved the general outlook for the coming season's runoff. As based on recent snow surveys on the watershed of this stream the prospects appear to be fair but the runoff may not exceed 75 percent of normal. During April favorable melting temperatures prevailed, which resulted in river flow of about 50 percent above the past 25-year average. It is likely that the peak flow of this stream has occurred. Ample water will be available for

irrigation during the early summer months but a shortage may be expected during August and September. The water content of the snow at Brooklyn Lake is 14.7 inches and is only 50 percent of that a year ago at this time. There is little or no snow below elevations of 8,500 feet.

SOUTH PLATTE RIVER BASIN

CACHE LA POUDE RIVER: The present indication of the runoff in the Poudre is somewhat less promising than it was a month ago. Snow conditions on the headwaters of this stream remain favorable but, because of the deficiency in the snow cover at lower elevations, the runoff will no doubt be less than normal. Recent snow surveys indicate that the water content is approximately 75 percent of that of a year ago and about 15 percent less than the 11-year average. The peak flow will be early this season and will probably occur about May 20th. Because of the substantial reservoir storage in the mountain and plains reservoirs of the Poudre drainage there will be no serious water shortage this season. A small amount of additional storage may be expected during the period of maximum runoff. Soil moisture conditions are generally poor but recent storms have somewhat improved this situation.

BIG THOMPSON: The runoff in the Big Thompson this season will be below normal. However, no serious water shortage is anticipated. The snow cover on the headwaters of this stream is about 60 percent of the past 11-year average and reservoir storage in the Loveland area is fairly good at this time. Some additional storage may be expected during the peak flow which will occur earlier than usual this year. The runoff during late summer will be much below normal.

ST. VRAIN: The runoff in this stream this season probably will not exceed 50 percent of normal. Recent storms have improved somewhat the water supply conditions. However, throughout the irrigated area of this valley soil moisture is deficient and stream flow below normal for this season of the year. It is probable that little, if any additional storage, will be realized during the peak flow which will occur prior to June 1st.

BOULDER CREEK: The water content of the snow cover on the headwaters of the Boulder is now about three-quarters normal and 60 percent of that a year ago. Reservoir storage throughout the valley is favorable, with an expected small amount of additional accumulation during the peak runoff. No serious water shortage is expected in the Boulder valley during the early season but stream flow during the late summer and fall will be low.

CLEAR CREEK: Runoff prospects for Clear Creek are somewhat less promising than they were a month ago. Reservoir storage is favorable with a possibility of some addition in this supplemental supply during the peak flow of the stream. Soil moisture throughout the valley is fair. Present stream flow is below normal. The agricultural conditions in the irrigated sections are generally good.

SOUTH PLATTE ABOVE DENVER: Snow cover on the headwaters of the South Platte River above Denver has been dissipated during the month of April to the point where the average water content is about one-third of that a year ago and about one-half the past 11-year average. This decrease in water content of the snow cover makes conditions less favorable for the runoff this coming season. There will be sufficient water for the hay meadows in South Park and ample runoff to supply the needs of the City of Denver. Reservoir storage in the mountain and plains reservoirs now totals 192,000 acre-feet as compared with 177,000 a year ago.

For the lower South Platte valley, from Denver east of the state line, reservoir storage is equal to that of a year ago at this time and this storage, combined with return flow and runoff from the upper drainage, will be ample for this season's irrigation needs. Soil moisture throughout the irrigated area is generally good and because of the advanced season crop outlook is quite favorable. From the standpoint of the South Platte drainage, as a whole, tributary irrigated areas have been seriously handicapped because of deficient soil moisture, and are generally much retarded. For the most part there will be ample water for irrigation during the early summer but shortages may be expected after July. The outlook is much strengthened because of the present amount of water in storage to supplement the expected decreased stream flow later in the season. It is not unlikely that some water will pass down the Platte River into Nebraska during late May and early June.

ARKANSAS RIVER

ARKANSAS RIVER: Because of the persistent drouth conditions over the headwaters of the Arkansas the outlook for the coming season's runoff is somewhat discouraging. Recent snow surveys show the average water content on the headwaters is only one-quarter of that of a year ago at this time and one-third of the past 11-year average. Storage in the principal reservoirs of the mountain and plains areas, however, now totals about 302,000 acre-feet as compared with 299,000 last year. There will be a substantial amount of water brought from the Colorado drainage through the tunnel and stored in the Twin Lakes at the headwaters of the Arkansas. It is probable that Twin Lakes will reach capacity early in July.

On the headwaters of the Purgatoire, in the Trinidad area, the outlook is not as promising as it was a month ago. Stream flow now is much below normal with the snow cover receding rapidly at higher elevations. Soil moisture is fair. Storage in the Model reservoir is 3600 acre-feet as compared with 5,000 a year ago.

For the Fountain River watershed the snow conditions are disappointing at this time and much below normal runoff is to be expected this season from snow-melt. Reservoir storage along the Fountain is about the same as a year ago and soil moisture is fair. Precipitation during the month of April was slightly below normal.

GROUND WATER

Water table observations were greatly interfered with by early season pumping. The month of April was one of unusual moisture deficiency, especially in the South Platte drainage, and many wells were in operation to provide supplemental irrigation.

In the Arkansas Valley, the water table beneath the mesa south of the river, between Pueblo and Avondale, is from 1 to 2 feet lower than a year ago. Between Avondale and Rocky Ford there has been little or no change in the pumped areas.

Along the South Platte, from Denver to Sterling, the water table ranges from 1 foot higher to 1 foot lower than a year ago, being generally higher below La Salle. Lowerings of 3 to 4 feet have occurred on Box Elder Creek near Wellington. The Prospect Valley water table is about 2 feet lower than a year ago, largely because of early-season pumping. The Bijou Creek water table is slightly lower and Beaver Creek slightly higher than a year ago. Elsewhere there have been no significant changes.

SNOW SURVEYS AND IRRIGATION WATER FORECASTS
FOR MISSOURI AND ARKANSAS RIVERS
May 1, 1946

P R E C I P I T A T I O N D A T A
(Based on incomplete returns)

WATERSHED	STATE	Precipitation October 1 to April 30 Inches	Departure from Normal Inches	Precipitation April Inches	Departure from Normal Inches
Missouri	East. Mont.	3.49	-0.29	0.39	-0.70
Missouri	Cent. Mont.	4.55	-1.19	0.50	-0.69
Missouri	North. Wyo.	7.52	-1.33	0.46	-1.25
North Platte	Wyoming	4.43	-1.76	0.71	-0.53
South Platte	Colorado	5.66	-2.73	1.01	-1.65
Arkansas	Colorado	5.97	-2.00	1.44	-0.70

Precipitation during April was below normal throughout the area. The accumulated precipitation from October 1 to April 30 was also below normal on all drainages, the deficiencies are not so great, however, but that a few heavy rains can bring the precipitation up to normal.

SUMMARY OF MAY 1 SNOW SURVEYS AND COMPARISON OF DATA

WITH THAT OF PREVIOUS YEARS BY WATERSHEDS

WATERSHEDS	Snow Depth		Water Content		Number courses in average	Snow Density		1946 Water Content in percent of			
	Eleven Year Avg. *	1945	Eleven Year Avg. *	1946		Eleven Year Avg. *	1945	1946	Eleven Year Avg. *		
	In.	In.	In.	In.		Percent	Percent	Percent	Percent		
MISSOURI RIVER											
Jefferson River	16.0	20.1	6.4	5.8	3	40	38	41	91	76	
Madison River	30.3	30.9	13.3	14.7	4	43	36	44	110	131	
Gallatin River	29.3	33.6	10.6	11.3	3	36	31	37	107	108	
Missouri River**	13.8	26.7	4.4	1.6	5	32	31	26	36	119	
Marais River	15.3	40.1	6.4	4.4	2	42	36	46	69	30	
Yellowstone River	22.3	28.6	7.5	8.3	1	34	32	36	111	90	
Shoshone River	36.1	41.4	13.6	8.7	2	38	33	31	64	63	
Bighorn River	23.3	37.5	7.8	2.8	9	33	30	29	36	25	
Tongue River	9.0	20.6	2.9	0.0	1	32	39	--	0	0	
Powder River	15.4	26.6	4.6	0.0	2	30	29	--	0	0	
North Platte River	45.4	61.3	17.8	12.4	10	39	37	46	70	55	
Sweetwater River	33.9	56.6	11.6	3.0	2	34	34	39	26	16	
Laramie River	29.4	43.0	10.4	5.3	3	35	36	34	56	36	
South Platte River***	15.9	22.4	4.8	2.2	3	30	29	22	46	34	
Crow Creek	8.1	24.7	2.4	0.0	1	30	34	--	0	0	
Poudre River	36.5	42.0	13.3	11.1	5	36	36	46	84	73	
Big Thompson River	52.8	63.0	17.5	10.3	2	33	34	36	59	48	
St. Vrain River	36.7	48.8	13.1	4.7	1	36	39	36	36	25	
Boulder Creek	30.5	39.4	11.2	8.6	2	37	36	45	78	60	
Clear Creek	44.5	51.7	14.8	7.6	2	33	34	32	51	44	
ARKANSAS RIVER	27.1	38.1	9.3	3.2	8	34	33	33	34	25	

*Some for shorter periods.

**Helena-Grant Falls

***Above Denver, Colorado

*Some for shorter periods.

**Helena-Great Falls

***Above Denver, Colorado

MISSOURI AND ARKANSAS RIVER WATERSHEDS
Summary of Federal and State Cooperative Snow Surveys
Issued May 10, 1946, at Fort Collins, Colorado

Main Drainage and No. Snow Course	Local Drainage	State	Locality	Description	Elev.	National Forest	May 1 Snow Course Measurements					
							Av. Snow Depth	Av. Water Content				
No.							1945	1946	Av. @	1945	1946	
							In.	In.	In.	In.	In.	In.
JEFFERSON RIVER												
6	Camp Creek*	Idaho	6mi. N. Spencer	21-13N-36E	6800	Targhee	0.0	0.0	0.0	0.0	0.0	0.0
7	Moose Creek*	"	3mi. S. Gibbons P.	27-27N-21E	6200	Salmon	42.3	44.7	42.0	17.6	17.6	17.4
7	East Fork R. S. *	Mont.	13mi. NE. Sula	16-2N-17W	5400	Bitterroot	5.6	15.7	0.0	1.7	5.2	0.0
10	Gibbons Pass	"	Gibbons Pass	4-2S-19W	7100	"						
30	Pipestone Pass	"	Pipestone Pass	11-1N-7W	7200	DeerLodge						
	Wise River	"	8mi. N. Polaris	15-4S-12W	8450	BeaverHead						
31	Storm Lake	"	15mi. W. Anaconda	19-4N-13W	8100	DeerLodge	16.0	20.1	14.0	6.4	7.6	11.5
Average for Drainage												
MADISON RIVER												
2	Aster Creek* ϕ	Wyo.	Lewis Lake	44-3N110.6W	7700	Yel. Nat. P.	--	--	81.0	--	--	34.7
8	Lewis L. Divide* ϕ	"	3mi. S. Lewis L.	44-2N110.7W	7900	"	89.2	86.8	105.0	39.5	33.2	45.6
11	Norris Basin	"	Norris Basin	44-3N110.7W	7500	"						
3	Big Springs*	Idaho	Big Springs	34-14N-44E	6500	Targhee	7.0	6.4	4.0	2.5	2.1	1.8
16	West Yellowstone	Mont.	W. Yellowstone	34-13S-5E	6700	Gallatin	21.6	23.3	22.0	9.1	7.3	10.3
	Twenty-one Mile	"	8mi. S. Gallatin	1-11S-5E	7150	Yel. Nat. P.	5.3	7.0	3.0	2.1	2.2	1.2
	Hobgen Dam	"	Hobgen Dam	22-11S-3E	6550	Gallatin	30.8	30.9	33.5	13.3	11.2	14.7
Average for Drainage												
GALLATIN RIVER												
	Devil's Slide	Mont.	20mi. S. Bozeman	14-5S-6E	8100	Gallatin	55.2	55.6	59.0	19.7	18.3	22.3
	Hood Meadow Extn.	"	14mi. " "	22-4S-6E	6600	"	11.1	22.0	10.0	3.1	6.0	1.3
	Mystic Lake No. 1	"	12mi. SE. " "	31-3S-7E	6600	"						
	Mystic Lake No. 2	"	" " " "	31-3S-7E	6600	"						
	Twenty-One Mile	"	8mi. S. Gallatin	1-11S-5E	7150	Yel. Nat. P.	21.6	23.3	22.0	9.1	7.3	10.3
	Ross Peak	"	12 mi. N. Bozeman	10-1N-6E	7000	Gallatin						
	New World Trail	"	8mi. SE. " "	13-3S-6E	7000	"	29.3	33.6	30.3	10.6	10.5	11.3
Average for Drainage												

*On adjacent drainage
@Average for period of record
April 15 readings

MISSOURI AND ARKANSAS RIVER WATERSHEDS

Summary of Federal and State Cooperative Snow Surveys
Issued May 10, 1946, at Fort Collins, Colorado

No.	Main Drainage and Course	Local Drainage	State	Locality	Description	Elev.	National Forest	May 1 Snow Cover Measurements			
								Av. Snow Depth	Av. Water Content	Av. @ 1945	Av. @ 1946
								In.	In.	In.	In.
MISSOURI RIVER											
	(Helena--Great Falls)										
6	Chessman Res.	Tennile	Mont.	11mi. SW. Helena	2-8N-5W	6200	Helena	3.6	10.9	0.0	1.1
11	Goat Mountain	South Fork	"	26mi. W. Gilman	47.5N112.9W	7000	Lewis & Clark			3.6	0.0
36	Stemple Pass	Canyon Creek	"	Stemple Pass	16-13N-7W	6900	Helena	15.4	32.2	6.0	4.8
41	Tennile Cr. Lower	Tennile	"	17mi. SW. Helena	13-8N-6W	6250	"	5.2	19.6	T	1.4
42	Tennile " Middle	"	"	"	13-8N-6W	6800	"	18.1	32.3	7.0	5.7
43	Tennile " Upper	"	"	"	19-8N-5W	8000	"	26.6	38.6	18.0	9.0
	Grasshopper Cr.	Grasshopper Cr.	"	6mi. S.W. S. Spgs.	19-9N-3E	7000	Lewis & Clark				
	King's Hill	Belt Creek	"	2mi. N.W. S. Spgs	35-13N-7E	7950	"				
	Orville Harris	Mussellshell R	"	12mi. E.W. S. Spgs	31-10N-9E	6500	"				
	Half Moon	Judith River	"	19mi. S. Lewistown	22-12N-18E	6000	"				
					Average for Drainage			13.8	26.7	6.2	4.4
7	Desert Mountain*	Outbank Cr.	Mont.	4mi. S. Belton	24-31N-19W	5600	Flat Head	16.4	42.1	0.0	6.4
20	Marías Pass	Two Medicine	"	Summit	48.3N113.4W	5250	Glacier NP	14.2	38.2	19.0	6.4
					Average for Drainage			15.3	40.1	9.5	6.4
YELLOWSTONE RIVER											
14	Dome Lake	Goose Creek	Wyo.	Dome Lake	11-53N-87W	8800	Big Horn		37.2		12.4
40	Lupine Creek	Lupine Creek	"	11mi. SE. Gardiner	44.9N110.6W	7300	Yel. Nat. P.				
41	Blacktail Deer Cr.	Blk. Tail Deer	"	11mi. " "	44.9N110.6W	7500	"				
43	Lodge Pole	Lodge Pole Cr.	"	34mi. NW. Cody	32-56N-106W	8200	Shoshone	22.3	28.6	23.0	7.5
3	Canyon	Tower Creek	"	3mi. N. Canyon Jct	44.7N110.5W	7750	Yel. Nat. P.				
	Cook City	Soda Bottle Cr.	Mont.	Cook City	25-9S-14E	7400	Absaroka				
7	Lake Camp	Yellowstone	Wyo.	3mi. NE. Fishing Br.	44.6N110.4W	7850	Yel. Nat. P.				
					Average for Drainage			22.3	28.6	23.0	7.5
								22.3	28.6	23.0	7.5

*Adjacent Drainage

@Average for period of record

MISSOURI AND ARKANSAS RIVER WATERSHEDS
Summary of Federal and State Cooperative Snow Surveys
Issued May 10, 1946, at Fort Collins, Colorado

Main Drainage		Local		Location		Elev.		May 1 Snow Cover Measurements									
Drainage		Drainage		Locality		Forest		Av. Snow Depth		Av. Water Content		1945		1946			
No.	Snow Course			State		Description		In.	In.	Av. @	In.	In.	In.	In.	In.		
SHOSHONE RIVER																	
32	Sylvan Pass	Middle Cr.	Wyo.	Sylvan Pass	12-52N-110W	7100	Yel. Nat. P.	19.2	28.6	10.9	7.0	9.7	4.0				
33	Up. Hardpan Basin	Hardpan Cr.	"	27 mi. SW. Cody	25-51N-106W	9500	Shoshone	--	--	--	--	--	--				
50	Brooks Lake #3*	Shoshone R.	"	Brooks Lake	23-44N-110W	9200	"	53.0	54.3	44.8	20.3	17.9	13.4				
								36.1	41.4	27.9	13.6	13.8	8.7				
BIGHORN RIVER																	
13	Tensleep R.S.	Tensleep Cr.	Wyo.	15 mi. NE. Tensleep	30-49N-86W	8300	Bighorn	12.5	25.8	5.2	3.8	5.8	0.6				
16	Ranger Creek	Ranger Creek	"	14 mi. E. Shell	32-53N-88W	8800	"	21.6	37.6	10.7	6.6	10.4	2.7				
14	Dome Lake*	Shell Cr.	"	Dome Lake	11-53N-87W	8300	"		37.2			12.4					
45	Sawmill Glade	Popo Agie R.	"	13 mi. SW. Lander	3-31N-101W	8500	Shoshone	20.0	43.2	0.0	6.2	13.5	0.0				
46	Blue Ridge	"	"	15 mi. " "	23-31N-101W	9500	"	36.0	62.8	9.6	11.0	17.4	3.3				
47	South Pass	"	"	19 mi. " "	13-30N-101W	9000	"	35.1	56.8	9.8	11.6	18.1	3.6				
48	Wood River	L. Popo Agie R.	"	42 mi. SW. Cody	23-46N-103W	8000	"	10.1	28.0	2.6	3.0	8.6	0.7				
49	Sheridan Cr. R.S. #2	Wood River	"	16 mi. NW. Dubois	3-42N-109W	7500	"		0.0			0.0					
50	Brooks Lake #3	Wind River	"	Brooks Lake	23-44N-110W	9200	"	53.0	54.3	44.8	20.3	17.9	13.4				
51	St. Lawrence R.S.	St. Lawrence Cr.	"	27 mi. NW. Lander	26-1N-4W	9000	Shos. I. R.	31.2	--	7.9	8.3	--	1.8				
52	Mosquito Park R.S.	Trout Creek	"	18 mi. " "	23-28S-3W	9500	"	17.2	23.6	3.1	5.7	6.9	1.0				
53	DuNoir	Wind River	"	9 mi. NW. Dubois	27-42N-108W	8750	Shoshone	4.5	5.7	0.0	1.9	1.4	0.0				
54	T-Cross Ranch	Horse Creek	"	12 mi. N. Dubois	1-43N-107W	8000	"	23.3	37.5	9.5	7.8	11.1	2.8				
TONGUE RIVER																	
14	Dome Lake	Goose Cr.	Wyo.	Dome Lake	11-53N-87W	8800	Bighorn		37.2			12.4					
17	Big Goose Cr. R.S.	E. Goose Cr.	"	20 mi. SW. Sheridan	4-53N-86W	7700	"	9.0	20.6	0.0	2.9	8.0	0.0				
								9.0	20.6	0.0	2.9	8.0	0.0				
POUNDER RIVER																	
30	Red Fork	Middle Fork	Wyo.	23 mi. W. Kaycee	18-43N-85W	7500	Off Forest	12.2	22.8	0.0	3.9	7.6	0.0				
31	Sour Dough	Sour Dough Cr.	"	10 mi. W. Klondike	17-49N-84W	8500	Bighorn	18.6	30.5	0.0	5.4	8.1	0.0				
								15.4	26.6	0.0	4.6	7.8	0.0				

*On adjacent drainage

@Average for period of record

MISSOURI AND ARKANSAS RIVER WATERSHEDS
Summary of Federal and State Cooperative Snow Surveys
Issued May 10, 1946, at Fort Collins, Colorado

No.	Main Drainage and Snow Course	Local Drainage	State	Location Locality	Description	Elev.	National Forest	May 1 Snow Cover Measurements						
								Av. Snow Depth Av. Water Content						
								Av. © 1945	In.	Av. © 1946	Av. © 1946			
NORTH PLATTE RIVER														
1	Cameron Pass	Michigan Cr.	Colo.	Cameron Pass	2-6N-76W	10300	Roosevelt	61.1	69.5	48.4	23.7	24.1	In.	28.5
7	Park View	Illinois Cr.	"	7mi. SE. Pand	24-5N-78W	9200	Routt	19.1	27.5	5.7	7.0	9.7	In.	2.6
8	Columbine Lodge	Grizzly Cr.	"	Rbt. Ears Pass	21-5N-82W	9300	"	44.5	62.0	22.7	18.7	25.5	In.	10.9
51	Big Creek Lake	Big Creek	"	5mi. SW. Pearl	9-11N-82W	9000	"			3.1			In.	1.4
52	Willow Creek P.*	Illinois Cr.	"	Willow Cr. Pass	1-4N-78W	9500	Arapaho	32.2	37.6	16.4	11.9	15.0	In.	5.0
7	Bottle Creek	Encampmt Cr.	Wyo.	7mi. SW. Encampmt	24-14N-85W	3200	Medicine Bow	21.7	44.3	2.9	7.9	16.7	In.	1.0
8	Webber Spring	"	"	10mi. W. "	27-14N-85W	9000	"	43.4	61.1	18.1	16.8	20.2	In.	7.6
9	Old Battle	"	"	12mi. W. "	29-14N-85W	9800	"	73.1	102.5	56.5	32.0	39.3	In.	24.9
37	North French Cr.	N. French Cr.	"	Cent/Saratoga	27-16N-80W	10200	"	81.0	98.9	63.5	32.7	35.5	In.	29.4
38	N. Barrett Cr. #2	Barrett Cr.	"	"	30-16N-80W	9400	"	54.9	76.7	32.4	20.7	27.5	In.	13.9
39	Ryan Park #2	"	"	"	34-16N-81W	8400	"	18.5	37.8	0.0	6.4	13.4	In.	0.0
					Average for Drainage			45.4	61.8	26.7	17.8	22.7	In.	12.4
SWEETWATER RIVER														
29	Granmier Meadows	Rock Creek	Wyo.	20mi. SW. Lander	19-30N-100W	9000	Shoshone	32.7	56.5	5.5	11.7	20.0	In.	2.3
47	South Pass*	"	"	19mi. " "	13-30N-101W	9000	"	35.1	56.8	9.8	11.6	18.1	In.	3.6
					Average for Drainage			33.9	56.6	7.6	11.6	19.0	In.	3.0
LARAMIE RIVER														
3	Brooklyn Lake	Nash Fork	Wyo.	7mi. NW. Centennial	11-16N-79W	10200	Medicine Bow	54.5	71.9	41.8	21.6	28.0	In.	14.7
11	Fox Park	Fox Creek	"	Fox Park	21-13N-78W	9200	"	19.7	38.5	1.6	7.3	14.4	In.	0.6
34	Pole Mountain #2*	Soldier Cr.	"	10mi. SE. Laramie	35-15N-72W	8700	"	8.1	24.7	0.0	2.4	8.3	In.	0.0
35	Libby Lodge #2	Libby Creek	"	3mi. NW. Centennial	29-16N-78W	8700	"	11.8	32.6	2.2	3.9	11.9	In.	0.6
36	Harpin Turn #2	Nash Fork	"	5mi. NW. "	24-16N-79W	9500	"	29.5	43.2	15.8	9.8	14.5	In.	5.0
4	W. Port-G-P. Tunnel	Laramie R.	Colo.	4mi. N. Chambers L	7-8N-75W	8600	Roosevelt	11.3	15.2	2.2	3.8	6.2	In.	1.0
50	Deadman Hill*	Deadman Cr.	"	10mi. W. R. Feather	26-10N-75W	10200	"	47.8	52.5	33.5	16.0	18.8	In.	11.6
88	Roach	LaGarde Cr.	"	8mi. NW. Glendevoy	5-10N-77W	9800	"	52.9	65.7	39.3	18.2	21.4	In.	12.8
					Average for Drainage			29.4	43.0	17.0	10.4	15.4	In.	5.8

*On adjacent drainage

©Average for period of record

MISSOURI AND ARKANSAS RIVER WATERSHEDS
Summary of Federal and State Cooperative Snow Surveys
Issued May 10, 1946, at Fort Collins, Colorado

Main Drainage and No. Snow Course		Local Drainage	Location		Elev.	National Forest	May 1 Snow Cover Measurements				
			State	Locality	Description			In.	In.	Av. Snow Depth 1945	Av. Water Content 1945
CHEYENNE RIVER											
1	Upper Spearfish	Spearfish Cr.	S. Dak.	21mi. SW. Spearfish	21-3N-1E	6500	Black Hills				
2	Upper Castle	Castle Cr.	"	11mi. NW. Deerfield	24-2W-1E	6300	"				
3	Deerfield	Silver Cr.	"	3mi. NW. Deerfield	23-1E-2E	6010	"				
Average for Drainage											
SOUTH PLATTE RIVER**											
14	Hoosier Pass	S. Platte R.	Colo.	Hoosier Pass	13-6S-7W	11400	Pike	32.0	37.4	20.9	10.0
15	Fairplay	"	"	Fairplay	33-9S-7W	10000	"	0.5	0.0	0.0	0.0
83	Jefferson Cr. #2	Jefferson Cr.	"	5mi. NW. Jefferson	14-7S-7W	10100	"	15.2	29.9	8.7	4.2
Average for Drainage											
CROW CREEK											
34	Pole Mountain #2	Crow Creek	Wyo.	10mi. SE. Laramie	35-15N-72W	8700	Medicine Bow	8.1	24.7	0.0	2.4
POUDRE RIVER											
1	Cameron Pass	Joe Wright Cr.	Colo.	Cameron Pass	2-6N-76W	10300	Roosevelt	61.1	69.5	48.4	23.7
2	Chambers Lake	Poudre River	"	Chambers Lake	6-7N-75W	9000	"	9.0	17.6	1.1	3.4
3	Big South	"	"	2mi. E. Chambers L.	33-6N-75W	3600	"	1.4	1.3	0.0	0.5
50	Deadman Hill	N. Poudre R.	"	10mi. W. R. Feather	26-10N-75W	10200	"	47.8	52.5	33.5	16.0
65	Lake Irene*	Big S. Poudre	"	1mi. SW. Milnor P.	8-5N-76W	10600	Ry. Mtn. N.P.	63.1	73.2	38.0	22.9
68	Hour Glass Lake	L. S. Poudre	"	2mi. NW. Pingree P.	13-7N-75W	9500	Roosevelt	19.1	--	3.8	6.7
Average for Drainage											
BIG THOMPSON											
65	Lake Irene*	Big Thompson R.	Colo.	1mi. SW. Milnor P.	8-5N-75W	10600	Ry. Mtn. N.P.	63.1	73.2	38.0	22.9
95	Hidden Valley #2	Hidden Val. Cr.	"	9mi. W. Estes P.	23-5N-74W	9550	"	42.4	52.9	19.8	12.1
Average for Drainage											

*On adjacent drainage

@Average for period of record

**Above Denver

MISSOURI AND ARKANSAS RIVER WATERSHEDS

Summary of Federal and State Cooperative Snow Surveys
Issued May 10, 1946, at Fort Collins, Colorado

Main Drainage and Snow Course		Local Drainage	State	Location Locality	Description	Elev.	National Forest	May 1 Snow Cover Measurements							
No.	Snow Course							Av. Snow Depth	Av. Snow Depth	Av. Snow Depth	Av. Snow Depth	Av. Snow Depth	Av. Snow Depth	Av. Snow Depth	Av. Snow Depth
								1945	1946	1945	1946	1945	1946	1945	1946
41	ST. VRAIN RIVER Wild Basin	N. St. Vrain R.	Colo.	5 mi. W. Allens P.	24-3N-74W	10000	By. Mtn. N.P.	36.7	48.8	12.9	13.1	19.0	In.	In.	4.7
5	BOULDER CREEK E. Port. Moffat T. University Camp #2	S. Boulder Cr.	Colo.	East Portal	2-2S-74W	9400	Roosevelt	5.1	6.6	0.0	1.6	2.6	0.0	0.0	0.0
60		N. Boulder Cr.	"	5 mi. SW. Ward	28-1E-73W	10300	"	55.8	72.3	38.3	20.7	26.0	17.2	17.2	8.6
					Average for Drainage			39.5	39.4	19.2	11.2	14.3	14.3		
61	CLEAR CREEK Loveland Pass #2 Grizzly Peak*	Clear Creek	Colo.	10 mi. W. Georgetown	27-4S-76W	10100	Arapaho	36.6	47.1	12.7	12.3	15.8	3.4	3.4	
97		"	"	1 mi. W. Loveland P.	2-5S-76W	11250	"	52.4	56.3	34.4	17.2	18.9	11.9	11.9	7.6
					Average for Drainage			44.5	51.7	23.6	14.8	17.4	17.4		
	ARKANSAS RIVER														
19	Tennessee Pass	Tennessee Cr.	Colo.	Tennessee Pass	21-3S-30W	10200	San Isabel	14.9	24.3	0.0	4.8	6.5	0.0	0.0	
21	Twin Lakes Tun.	Lake Creek	"	9 mi. W. Twin Lakes	22-11S-32W	10500	"	--	31.8	--	--	10.8	--	--	
42	Marshall Creek*	Poncha Cr.	"	Marshall Pass	24-43N-6E	10800	Gunnison	29.7	50.6	6.9	10.1	16.1	1.9	1.9	
43	Poncha Creek	"	"	"	19-43N-7E	10500	San Isabel	23.9	49.8	4.2	5.1	15.1	1.3	1.3	
72	Whiskey Creek #2	Whiskey Cr.	"	Whiskey Cr. Pass	37-21N-05.2W	10300	Maxwell Gr	14.9	16.5	0.0	5.4	6.0	0.0	0.0	
74	LaVeta Pass #2*	Cuchara Cr.	"	LaVeta Pass	22-28S-70W	9300	San Cristobal	11.5	22.3	0.0	4.2	5.7	0.0	0.0	
75	Four Mile Park #2	Lake Creek	"	3 mi. SW. Twin L.	23-11S-31W	9700	San Isabel	0.8	--	0.0	1.3	--	0.0	0.0	
79	Fremont Pass #2	E. Fork Ark. R.	"	Fremont Pass	2-3S-79W	11400	Arapaho	49.0	50.6	43.1	16.3	15.6	13.0	13.0	
81	Blue Lakes #2	Cuchara Cr.	"	15 mi. SW. LaVeta	30-31S-69W	10000	San Isabel	21.0	35.2	0.0	7.3	11.9	0.0	0.0	
92	Monarch Pass	S. Fork Ark. R.	"	Monarch Pass	16-49N-6E	10500	San Isabel	51.8	55.3	24.0	18.5	20.9	9.6	9.6	
					Average for Drainage			27.1	38.1	9.8	9.3	12.6	12.6	3.2	

*On adjacent drainage

@Average for period of record

RESERVOIR STORAGE

Reservoir Storage in Thousands of Acre-Feet, Colorado, Wyoming, and Montana, as of May 1, for the years 1937 to 1946, inclusive. (Based on data gathered by State Engineer of Colorado, U. S. Bureau of Reclamation and other agencies)
 A = Percentage of capacity. B = Percentage of 10-year average. C = Percentage of filling Forecast for 1946.
 Reservoir Capacity 1937 1938 1939 1940 1941 1942 1943 1944 1945 1946 10 yr. Ave. A B C

SOUTH PLATTE DRAINAGE

Reservoir	Capacity 1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	10 yr. Ave.	A	B	C
	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	%	%	%
Eleven Mile	81.9	16.4	27.4	66.8	70.5	81.9	81.9	81.9	81.9	81.9	67.2	100	122	100
Cheeseman	79.0	43.7	34.4	79.1	49.7	79.1	79.1	69.6	62.5	73.7	63.5	93	116	100
Marston	13.9	16.7	16.7	15.4	16.6	15.4	15.6	16.4	14.9	15.2	15.9	80	96	100
Barr	32.2	20.0	13.3	25.6	10.5	28.6	27.3	28.8	26.0	25.8	21.7	80	119	90
Milton	24.4	11.0	4.0	15.9	4.4	19.6	19.6	17.1	12.2	16.3	12.4	67	131	75
Standley	18.5	15.8	12.2	15.7	11.3	17.9	17.0	14.0	13.7	17.4	14.3	94	122	95
Marshall	10.3	6.0	6.9	6.2	5.4	8.7	3.1	4.7	3.6	5.3	5.2	51	102	75
Antero	33.0	0.0	0.0	11.5	0.0	13.0	23.8	21.3	16.1	20.1	11.7	61	172	65
Horse Creek	20.6	5.2	1.1	13.9	0.0	12.7	12.6	12.1	10.4	12.3	8.0	60	153	60
Riverside	57.5	47.0	30.7	54.6	30.5	55.7	57.5	56.5	53.9	53.9	46.1	94	117	100
Empire	37.7	24.7	23.0	34.4	20.3	35.5	34.9	34.1	33.8	32.2	29.7	85	108	100
Jackson Lake	35.4	33.4	33.2	34.1	33.7	35.4	33.9	35.4	35.4	34.4	34.2	97	100	100
Prewitt	32.8	19.2	9.7	28.6	6.8	28.4	28.8	30.0	26.4	27.6	21.3	84	129	100
Point of Rocks	70.0	64.3	38.0	66.4	44.2	67.5	68.6	70.6	79.3	67.0	59.2	96	113	100
Julesburg	28.2	20.9	22.9	21.5	23.1	23.0	22.9	22.2	22.8	21.9	22.4	73	98	100
Barker Meadow	11.7	2.7	2.7	1.6	7.9	2.6	4.6	2.7	0.4	5.5	3.4	47	162	50
Albion	1.1	1.1	1.1	0.7	1.1	1.1	1.1	1.1	1.1	1.1	1.0	100	110	100
Union	12.7	7.5	3.1	12.6	0.7	6.7	12.7	8.2	5.5	9.2	6.9	73	133	75
Lake Loveland	14.3	1.0	1.0	12.3	2.6	7.0	13.2	9.7	3.6	8.2	5.7	57	144	75
Boyd Lake	44.0	3.0	0.0	20.0	0.2	0.0	33.7	26.3	25.7	24.3	13.3	55	183	60
Lone Tree	9.2	9.0	9.0	9.2	8.7	9.2	9.2	9.3	4.7	8.1	8.0	83	101	90
Mariano	5.4	3.0	3.9	4.8	2.7	4.6	4.6	4.0	2.7	3.6	3.5	67	103	75
Windsor	18.6	10.5	11.8	17.7	11.8	14.8	17.2	14.6	11.9	13.3	12.9	71	103	75
Cache la Poudre	9.5	7.3	7.5	9.2	7.2	9.3	10.1	9.0	6.6	8.9	8.0	94	111	100
Fossil Creek	11.6	7.1	5.5	11.7	5.6	10.3	10.7	10.9	4.2	10.3	8.0	89	129	100
Terry	8.2	4.1	4.1	5.9	4.0	6.4	6.2	6.2	4.1	5.3	5.0	65	106	75
Halligan	6.4	4.1	4.9	4.3	0.0	2.8	6.4	5.2	0.0	0.0	2.9	0	85	0
Chamber's Lake	8.3	2.4	3.1	7.3	3.3	3.1	4.2	2.4	2.2	2.8	3.3	32	85	75
Cobb Lake	34.3	1.5	0.5	0.0	0.3	0.8	11.4	8.4	8.4	4.2	3.8	12	110	15
Black Hollow	3.0	0.8	1.5	5.3	1.5	2.8	5.4	4.6	2.0	4.1	3.0	51	137	60

*Some averages for shorter periods.

RESERVOIR STORAGE, Cont.

A - Percentage of capacity.		B - Percentage of 10-year average.		C = Percentage of filling Forecast for 1946									
Reservoir	Capacity	1937	1938	1939	1940	1941	1942	1943	1944	1945	1946	10 yr. Avg.	
	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	Ac-ft.	
ARKANSAS DRAINAGE													
Twin Lakes	57.9	14.4	7.2	26.4	15.3	11.5	37.5	27.0	20.0	14.0	20.5	20.5	51 144
Sugar Loaf	17.4	5.1	2.4	6.9	1.7	5.2	13.9	12.0	7.6	6.1	7.1	7.1	57 141
Clear Creek	11.4	0.0	0.7	3.5	1.0	0.8	5.1	8.9	2.6	7.7	8.6	3.9	75 221
Moredith	41.9	3.0	0.0	24.3	0.0	0.0	33.3	34.1	30.1	33.8	23.2	18.2	55 128
Horse Creek	26.9	7.9	0.0	8.3	0.0	0.0	11.6	19.5	8.3	11.8	14.0	8.1	52 173
Adobe Creek	61.6	1.7	0.0	8.2	0.0	0.0	58.2	46.0	47.3	34.3	41.0	23.7	67 173
Cucharas	40.0	25.2	4.3	2.1	0.4	3.1	25.7	0.2	3.5	10.0	5.3	8.0	13 66
Two Buttes	40.9	23.7	25.5	26.9	14.2	12.0	13.3	9.0	0.1	0.6	0.3	13.0	1 2
John Martin	655.0	--	--	--	--	--	--	30.8	60.1	45.9	49.9	46.7	8 106
Great Plains	150.0	0.0	0.0	33.4	0.0	0.0	63.6	101.3	46.1	118.2	90.3	45.3	60 199
Model	15.0	1.3	3.0	5.5	1.3	5.3	9.1	6.4	7.8	5.0	3.6	5.2	24 69
NORTH PLATTE DRAINAGE													
Pathfinder	1070.0	343.8	352.8	430.3	77.7	92.0	261.9	318.6	386.9	292.2	377.5	293.4	35 128
Guernsey	72.7	37.5	52.5	42.0	47.1	50.3	49.5	44.8	26.6	31.8	21.9	40.4	30 54
Seminole	1020.0	--	--	85.5	66.6	98.8	160.8	343.9	168.8	145.2	610.7	210.0	60 292
Alcova	165.8	0.0	99.4	123.5	92.8	74.3	133.4	120.4	104.8	124.8	143.1	101.6	87 141
Wheatland	70.4	20.9	26.1	51.0	9.0	17.7	30.0	56.0	42.8	28.1	54.0	33.6	77 160
Lake Alice	13.8	5.3	3.0	3.8	0.0	2.8	4.5	6.5	3.3	4.0	4.9	3.8	35 129
Minatare	60.8	8.1	30.6	38.5	16.9	13.9	38.1	53.8	40.8	44.7	51.5	33.7	85 153
Kingsley-Sutherland	2180.0	--	--	--	--	170.0	540.0	977.0	854.0	881.6	1280.0	783.8	59 163
BIG HORN DRAINAGE													
Bull Lake	155.0	--	--	42.8	38.8	15.7	67.7	46.7	79.8	50.6	52.4	49.3	34 106
Pilot Butte	30.0	--	21.5	19.8	24.7	21.7	20.4	18.2	23.7	20.4	21.6	21.3	72 101
SIOUXONE DRAINAGE													
Shoshone	456.6	342.1	317.1	394.3	106.9	36.9	357.0	391.9	304.3	258.3	387.7	289.6	85 134
SNAKE DRAINAGE													100
Jackson Lake	847.0	504.2	430.6	620.8	492.7	332.1	462.8	429.0	747.5	456.0	613.6	508.9	73 120
CHEYENNE DRAINAGE													
Belle Fourche	198.1	50.6	104.5	64.5	43.8	60.6	155.5	159.7	151.2	146.2	151.9	108.8	77 140

*Some averages for shorter periods

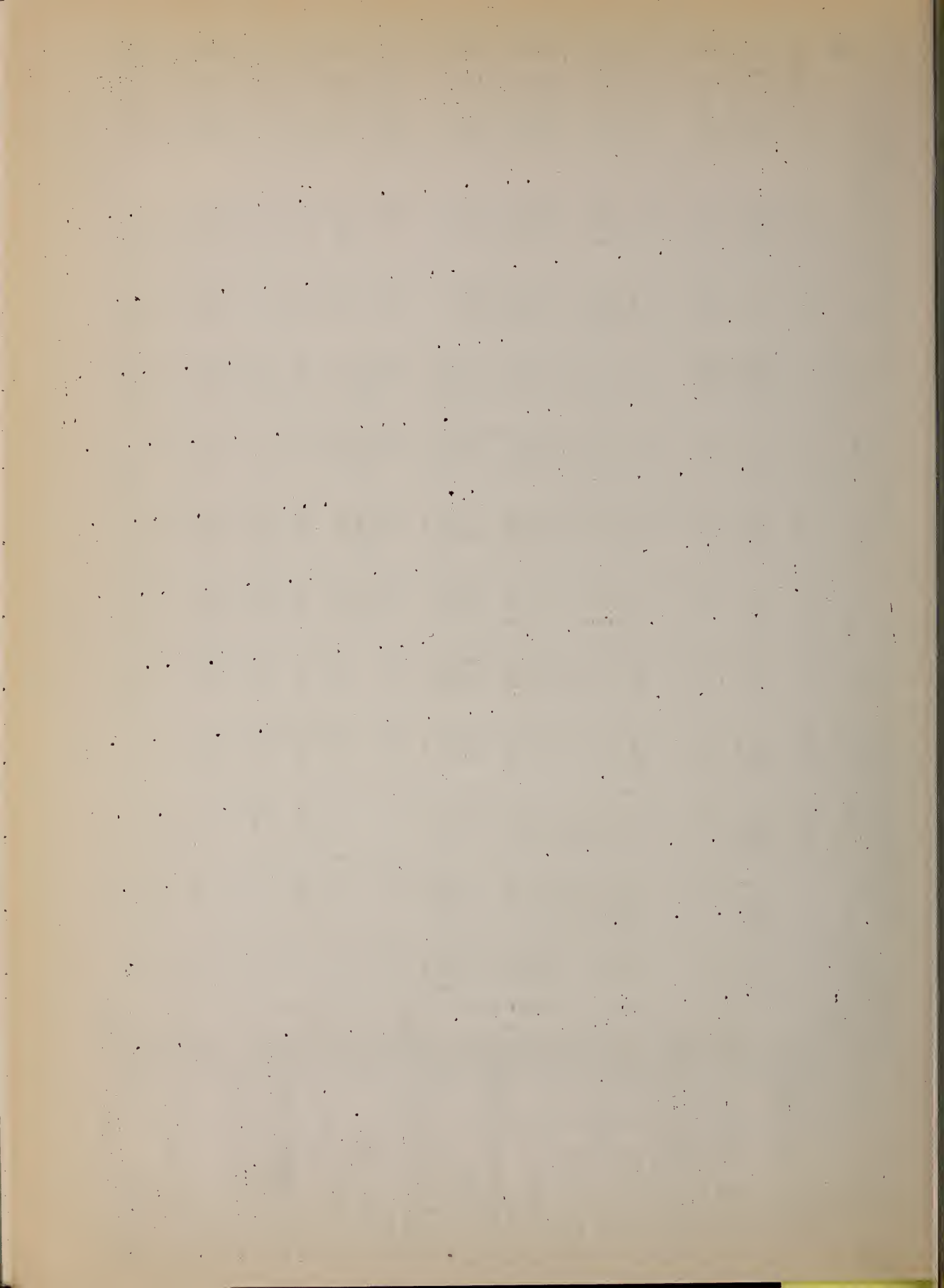
**Maximum storage in North Platte reservoirs in Wyoming will reach 1,250,000 acre-feet.

RESERVOIR STORAGE, Cont.

A - Percentage of capacity. B = Percentage of 10-year average. C = Percentage of filling forecast for 1946.

Reservoir	Capacity Ac-ft.	1937 Ac-ft.	1938 Ac-ft.	1939 Ac-ft.	1940 Ac-ft.	1941 Ac-ft.	1942 Ac-ft.	1943 Ac-ft.	1944 Ac-ft.	1945 Ac-ft.	1946 Ac-ft.	10 yr. Avg. Ac-ft.	A %	B %	C %
JEFFERSON RIVER DRAINAGE															
Baby	39.0			21.8	33.8	35.6	32.6	20.0	33.2	27.0	37.5	30.3	96	123	100
MADISON RIVER DRAINAGE															
Hebgen	345.0	337.8	173.3	273.3	283.0	271.7	293.8	227.3	255.1	246.5	191.7	255.4	56	75	60
Madison	41.0	9.9	22.7	29.4	33.1	27.4	27.6	34.7	30.3	33.8	37.4	28.6	91	131	100
GALLATIN RIVER DRAINAGE															
Mystic Lake	20.8	0.5	0.3	3.4	2.1	0.7	3.4	3.0	4.1	3.7	9.6	3.1	46	310	60
MISSOURI RIVER DRAINAGE															
(Helena-Great Falls)															
Canon Ferry	37.8	9.6	19.2	22.0	20.5	18.5	29.2	30.7	30.4	19.2	36.6	27.6	97	155	100
Fauser Lake	52.7	4.9	56.5	48.6	48.9	51.9	47.4	41.4	47.6	50.2	42.9	44.0	81	97	90
Holter	73.6	4.2	53.6	62.2	56.7	20.6	57.4	37.5	70.8	49.3	61.7	47.4	84	130	100
Smith River	10.7		6.2	10.7	8.1	4.4	7.6	8.3	9.3	7.5	--				
Gibson	105.0	32.7	56.0	97.0	67.5	48.9	93.1	81.2	83.7	71.6	76.7	70.8	73	108	75
Willow Cr.	32.4	1.6	1.9	11.2	11.0	1.4	3.3	14.1	17.9	22.6	11.6	9.7	36	120	50
Pishkun	32.0	11.2	11.2	7.0	14.0	14.0	26.6	17.4	17.1	17.0	22.4	15.8	70	142	75
MARIAS RIVER DRAINAGE															
Four Horns	20.0			8.0	8.8	8.9	12.2	8.8	8.2	5.3	5.8	8.3	29	70	50
Birch Creek	30.0	10.9	15.8	20.4	14.5	20.2	22.1	27.4	28.6	27.5					
Lake Francis	112.0	11.9	7.3	63.6	36.8	11.4	39.7	106.2	108.4	100.7					
MUSSELSHELL RIVER DRAINAGE															
Durand	7.0				2.8	3.1	6.3	7.0	6.1	7.0	5.5	5.4	79	102	85
Deadmans Bsn.	52.5						47.1	50.7	52.0	50.5					
Martinsdale	23.0				4.8	6.1	18.9	13.0	11.7	12.1	9.6	10.9	42	88	50
YELLOWSTONE RIVER DRAINAGE															
Gooney	27.5		24.0	21.5	21.0	23.0	18.0	13.0	12.5	13.4	8.3	17.2	30	45	75
TONGUE RIVER DRAINAGE															
Tongue R.	73.9			6.5	16.6	21.1	19.4	15.9	19.8	10.1					
MIK RIVER DRAINAGE															
Fresno	127.2				27.6	20.9	55.9	119.0	73.3	50.0	62.0	58.5	49	106	60
Nelson	66.8	17.8	29.4	36.7	39.2	28.6	24.2	42.1	40.6	37.0	26.6	32.2	40	83	60
ST. MARYS RIVER DRAINAGE															
Sherburne	56.0	5.6	25.1	13.2	21.0	17.0	40.2	36.4	8.1	19.2	10.7	12.7	16	54	25
Fort Peck	13,300.0	--	--	--	--	768	3168	7983	10503	11470	13870	7,855	71	169	75

*Some for shorter periods



The following organizations cooperate in the snow surveys and irrigation water supply forecasts for the Colorado, Missouri-Arkansas and Rio Grande watersheds by furnishing funds or services.

STATE

Colorado State Engineer
Wyoming State Engineer
Utah State Engineer
New Mexico State Engineer
Montana State Engineer
Nebraska State Engineer
Colorado Experiment Station
Colorado Extension Service
Montana Experiment Station
Utah Experiment Station

FEDERAL

Department of Agriculture
- Forest Service
Soil Conservation Service
Department of Interior
Bureau of Reclamation
Indian Service
Geological Survey
National Park Service
Department of Commerce
Weather Bureau
War Department
Army Engineer Corps

PUBLIC UTILITIES

Colorado Public Service Company
Western Colorado Power Company
Montana Power Company
Denver and Rio Grande Western R. R. Company

MUNICIPALITIES

City of Bozeman
City of Denver
City of Boulder

WATER USERS ORGANIZATIONS

Poudre Valley Water Users' Association
Arkansas Valley Ditch Association
Colorado River Water Conservation District

IRRIGATION PROJECTS

Farmers Reservoir and Irrigation Company
San Luis Valley Irrigation District
Santa Maria Reservoir Company
Costilla Land Company
Uncompahgre Valley Water Users' Association
Wyoming Development Company
Goshen Irrigation District
Kendrick Project
Pathfinder Irrigation District
Salt River Valley Water Users' Association
San Carlos Irrigation and Drainage District

Many other organizations and individuals furnish valuable information for the snow survey reports. Their cooperation is gratefully acknowledged.

